



LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

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Material Safety Data Sheet

LIQUID AIR CORPORATION INDUSTRIAL GASES DIVISION One California Plaza, Suite 350 2121 N. California Blvd. Walnut Creek, California 94596	PRODUCT NAME Oxygen		CAS NUMBER 7782-44-7
	TELEPHONE (415) 977-6500 EMERGENCY RESPONSE INFORMATION ON PAGE 2		
	TRADE NAME AND SYNONYMS Hyperox		CHEMICAL FAMILY Oxidizer
CHEMICAL NAME AND SYNONYMS Oxygen			
ISSUE DATE OCTOBER 1, 1985 AND REVISIONS CORPORATE SAFETY DEPT.	FORMULA O ₂	MOLECULAR WEIGHT 31.999	

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT	None established (ACGIH, 1984-85). Oxygen is the "vital element" in the atmosphere in which we live and breathe (approximately 21 molar % of the atmosphere).					
SYMPTOMS OF EXPOSURE	Breathing high concentrations (greater than 75 molar percent) causes symptoms of hyperoxia which include cramps, nausea, dizziness, hypothermia, amblyopia, respiratory difficulties, bradycardia, fainting spells and convulsions capable of leading to death. For additional data on hyperoxia as it relates to oxygen pressure and exposure duration, refer to L'Air Liquide's Encyclopedie des Gaz.					
TOXICOLOGICAL PROPERTIES	The property is that of hyperoxia which leads to pneumonia. Concentrations between 25 and 75 molar percent present a risk of inflammation of organic matter in the body.					
Listed as Carcinogen or Potential Carcinogen	National Toxicology Program	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	I.A.R.C. Monographs	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	OSHA	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

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RECOMMENDED FIRST AID TREATMENT
PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO OXYGEN. RESCUE PERSONNEL SHOULD BE COGNIZANT OF EXTREME FIRE HAZARD ASSOCIATED WITH OXYGEN-RICH ATMOSPHERES.
Conscious persons should be assisted to an uncontaminated area and breathe fresh air. They should be kept warm and quiet. The physician should be informed that the victim is experiencing (has experienced) hyperoxia.
Unconscious persons should be moved to an uncontaminated area and given assisted respiration. When breathing has been restored, treatment should be as above. Continued treatment should be symptomatic and supportive.

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HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Oxygen vigorously accelerates combustion. Contact with all flammable materials should be avoided. Some materials which are not flammable in air will burn in pure oxygen or oxygen-enriched atmospheres.

PHYSICAL DATA

BOILING POINT -297.35°F (-182.97°C)	LIQUID DENSITY AT BOILING POINT 71.23 lb/ft ³ (1141 kg/m ³)
VAPOR PRESSURE @ 70°F (21.1°C) above the critical temp. of -181.433°F (-118.574°C)	GAS DENSITY AT 70°F 1 atm .0828 lb/ft ³ (1.326 kg/m ³)
SOLUBILITY IN WATER @ 68°F (20°C) Bunsen coefficient = .0310	FREEZING POINT -361.838°F (-118.574°C)
APPEARANCE AND ODOR Colorless, odorless and tasteless gas. Specific gravity @ 70F (Air=1.0) is 1.11.	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED) N/A	AUTO IGNITION TEMPERATURE N/A	FLAMMABLE LIMITS % BY VOLUME N/A
EXTINGUISHING MEDIA Copious quantities of water for fires with oxygen as the oxidizer.		ELECTRICAL CLASSIFICATION Nonhazardous
SPECIAL FIRE FIGHTING PROCEDURES If possible, stop the flow of oxygen which is supporting the fire.		
UNUSUAL FIRE AND EXPLOSION HAZARDS Vigorously accelerates combustion.		

REACTIVITY DATA

STABILITY Unstable		CONDITIONS TO AVOID
Stable	X	
INCOMPATIBILITY (Materials to avoid) All flammable materials		
HAZARDOUS DECOMPOSITION PRODUCTS None		
HAZARDOUS POLYMERIZATION May Occur		CONDITIONS TO AVOID
Will Not Occur	X	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact the closest Liquid Air Corporation location.
WASTE DISPOSAL METHOD Do not attempt to dispose of residual or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to Liquid Air Corporation for proper disposal. For emergency disposal, contact the closest Liquid Air Corporation location.

EMERGENCY RESPONSE INFORMATION

**IN CASE OF EMERGENCY INVOLVING THIS MATERIAL, CALL DAY OR NIGHT (800) 231-1366
OR CALL CHEMTREC AT (800) 424-9300**

SPECIAL PROTECTION INFORMATION

Page 3

RESPIRATORY PROTECTION (Specify type)		
N/A		
VENTILATION To prevent accumulation above 25 molar percent.	LOCAL EXHAUST To prevent accumulation above 25 molar percent. MECHANICAL (Gen.)	SPECIAL
		OTHER
PROTECTIVE GLOVES As required; any material		
EYE PROTECTION Safety goggles or glasses		
OTHER PROTECTIVE EQUIPMENT Safety shoes, safety shower		

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION DOT Shipping Name: Oxygen or Oxygen, compressed DOT Shipping Label: Oxidizer	DOT Hazard Class: Nonflammable gas I.D. No.: UN 1072
SPECIAL HANDLING RECOMMENDATIONS <p>Use only in well-ventilated areas. Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.</p> <p>For additional handling recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.</p>	
SPECIAL STORAGE RECOMMENDATIONS <p>Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits and away from full or empty stored cylinders which contain flammable products. Do not allow the temperature where cylinders are stored to exceed 130F (54C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.</p> <p>For additional storage recommendations consult L'Air Liquide's Encyclopedia de Gaz or Compressed Gas Association Pamphlet P-1.</p>	
SPECIAL PACKAGING RECOMMENDATIONS <p>Carbon steels and low alloy steels are acceptable for use at lower pressures. For high pressure applications use stainless steels, copper and its alloys, nickel and its alloys, brass, bronze, silicon alloys, Monel[®], Inconel[®] or beryllium. Lead and silver or lead and tin alloys are good gasketing materials. Teflon[®] and Kel-F[®] are the preferred nonmetal gaskets.</p> <p>Special Note: It should be recognized that the ignition temperature of metals and nonmetals in pure oxygen service decreases with increasing oxygen pressure. For additional information refer to L'Air Liquide's Encyclopedie des Gaz.</p>	
OTHER RECOMMENDATIONS OR PRECAUTIONS <p>Oxygen should not be used as a substitute for compressed air in pneumatic equipment since this type generally contains flammable lubricants. Equipment to contain oxygen must be "cleaned for oxygen service." See Compressed Gas Association Pamphlet G-4.1. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).</p>	

*Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or use of this product which may not be contained herein. The customer or user of this product should be familiar with these regulations.



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ADDITIONAL DATA
